

### REMARKS

The final Office Action of September 12, 2007, and the Advisory Action of December 17, 2008, have been received and reviewed.

Claims 1-69 were previously pending in the above-referenced application. Of these, claims 3, 9, 32, 38, 50, and 54 were withdrawn from consideration pursuant to an election made in response to a species election requirement, while claims 1, 2, 4-8, 10-31, 33-37, 39-53, and 55-69 were considered. Final rejections were presented against claims 1, 2, 4-8, 10-16, 20-31, 33-37, 39, 43-53, 55, 56, and 60-69. Claims 17-19, 40-42, and 57-59 are drawn to allowable subject matter.

New claims 142-207 have been added.

Reconsideration of the above-referenced application is respectfully requested.

### Claim Amendments

Independent claims 1, 22, and 47 have been revised to improve clarity. As is evident from the language that has been added to each of these claims, the amendments do not narrow the scope of any of independent claims 1, 22, or 47, or of any of their dependent claims.

### Rejections under 35 U.S.C. § 103(a)

Claims 1, 2, 4-8, 10-31, 33-37, 39-53, and 55-69 have been rejected under 35 U.S.C. § 103(a).

There are several requirements in establishing a *prima facie* case of obviousness against the claims of a patent application. All of the limitations of the claim must be taught or suggested by the prior art. *In re Royka*, 490 F.2d 981, 985 (CCPA 1974); *see also* MPEP § 2143.03. Even then, a claim “is not proved obvious merely by demonstrating that each of its elements was, independently, known in the prior art.” *KSR Int’l Co. v. Teleflex Inc.*, 82 USPQ2d 1396 (2007). The Office must also establish that one of ordinary skill in the art would have had a reasonable expectation of success that the purported modification or combination of reference teachings would have been successful. *In re Merck & Co., Inc.*, 800 F.2d 1091, 1097 (Fed. Cir. 1986). There must also be “an apparent reason to combine the known elements in the fashion claimed

by the patent at issue.” *KSR* at 1396. That reason must be found in the prior art, common knowledge, or derived from the nature of the problem itself, and not based on the Applicant’s disclosure. *DyStar Textilfarben GmbH & Co. Deutschland KG v. C. H. Patrick Co.*, 464 F.3d 1356, 1367 (Fed. Cir. 2006). A mere conclusory statement that one of ordinary skill in the art would have been motivated to combine or modify reference teachings will not suffice. *KSR* at 1396.

Subrahmanyam

Claims 1, 2, 4-8, 10-24, 26-31, 33-37, 39-49, 51-53, 55-65, and 67-69 stand rejected under 35 U.S.C. § 103(a) for reciting subject matter which is allegedly unpatentable over the subject matter taught in U.S. Patent 5,411,400 to Subrahmanyam et al. (hereinafter “Subrahmanyam”).

Subrahmanyam teaches an assembly in which first and second components are physically coupled and electrically connected to one another by inserts 12 that protrude from one of the components and sockets 14 that protrude from the other component. FIG. 1; col. 3, lines 2-4. the teachings of Subrahmanyam are limited to inserts 12 and sockets 14 that are formed completely from conductive materials, such as metal. Col. 3, lines 50-52; col. 3, line 68, to col. 4, line 2.

As shown in FIGs. 6 and 9 of Subrahmanyam, each insert 12, 41 is a solid structure, including a cylindrical base 32 and a flanged circular head 37. *See also* col. 5, lines 40-41. FIGs. 7 and 9 of Subrahmanyam depict each socket 14, 42 as including a solid pedestal 29 upon which a sectioned ring 34 is disposed, with a flanged head 39 being located on an upper edge of the sectioned ring 34. *See also* col. 5, lines 56-57.

It is respectfully submitted that Subrahmanyam does not teach or suggest an insert 12, 41 that includes “an aperture configured to be located over [a] corresponding contact pad” and “a conductive center substantially filling [the] aperture,” as recited in independent claim 1. Rather, as evidenced by the cross-sectional representation provided in FIGs. 6 and 9 of Subrahmanyam, the teachings of Subrahmanyam are limited to inserts 12, 41 with bases 32 and heads 37 that are solid.

In addition, it is respectfully submitted that Subrahmanyam includes no express or inherent description of a female member with “a conductive center partially filling [an] aperture” of the female member. Rather, the socket 14, 42 of Subrahmanyam includes a sectioned ring 34 that sits upon (*i.e.*, on top of) a planar surface of a metal pedestal 29. Col. 4, lines 37-47; FIGs. 8 and 9; col. 5, line 60, to col. 6, line 9. Since the disclosure of Subrahmanyam is limited to a pedestal 29 with a planar surface and a socket 14, 42 with a sectioned ring 34 that sits atop the planar surface of the pedestal 29, it is apparent that Subrahmanyam also lacks any teaching or suggestion that at least a portion of an outer periphery of the pedestal 29 is laterally surrounded by the sectioned ring 34 or confined within an aperture of the sectioned ring 34, as are required of the female member of the conductive structure to which amended independent claim 1 is directed.

Accordingly, it is respectfully submitted that the teachings and suggestions of Subrahmanyam do not support a *prima facie* case of obviousness against the subject matter recited in independent claim 1, as would be required to maintain the 35 U.S.C. § 103(a) rejection of independent claim 1.

Claims 2, 4-8, and 10-21 are each allowable, among other reasons, for depending directly or indirectly from independent claim 1, which is allowable.

Claim 2 is further allowable because Subrahmanyam does not teach or suggest that the aperture of the socket 14, 42 described therein is “configured to partially limit insertion of [the insert 12, 41] thereinto.” To the contrary, FIGs. 7 and 9 depict the aperture of the socket 14, 42 as including smooth walls that are oriented perpendicular to the underlying pedestal 29.

Claim 5 is further allowable since Subrahmanyam includes no teaching or suggestion that the outer surface of the insert 12, 41 thereof “is configured to partially limit insertion” of the insert 12, 41 into the aperture of the socket 14, 42.

Claim 8 is additionally allowable because Subrahmanyam does not teach or suggest a male member with an end portion having a smaller periphery than a base portion of the male member. Rather, the description of Subrahmanyam is limited to an insert 12, 41 with a circular head 37 that has a smaller periphery at its end than at a base of the circular head 37. Nonetheless,

the outer periphery of the end of the circular head 37 appears to be the same size as the outer periphery of the base of the cylindrical base 32 of the insert 12, 41.

Claim 10 is further allowable since Subrahmanyam includes no teaching or suggestion that either the insert 12, 41 or the socket 14, 42 thereof comprises photopolymer. It is also submitted that, because the teachings of Subrahmanyam are limited to use of conductive materials to form the insert 12, 41 and the socket 14, 42, one of ordinary skill in the art wouldn't have been motivated to modify teachings from Subrahmanyam in such a way as to render the subject matter recited in claim 10 obvious.

Claim 11 depends from claim 10, and is also allowable since Subrahmanyam provides no teaching or suggestion of an insert 12, 41 or socket 14, 42 that comprises a plurality of layers of photopolymer. Nor would one of ordinary skill in the art been motivated to modify the teachings of Subrahmanyam in such a way as to develop a structure that includes a plurality of layers of photopolymer.

Claim 17 is additionally allowable because Subrahmanyam does not teach or suggest that either the insert 12, 41 or the socket 14, 42 thereof may include at least partially unconsolidated conductive material. Rather, the disclosure of Subrahmanyam is limited to conductive structures that comprise fully consolidated features.

Claim 18, which depends from claim 17, is further allowable because Subrahmanyam neither teaches nor suggests that either the insert 12, 41 or the socket 14, 42 thereof may include at least partially uncured conductive resin.

Claim 19, which depends from claim 18, is further allowable since Subrahmanyam does not teach or suggest that either the insert 12, 41 or the socket 14, 42 thereof may include uncured conductive resin.

Claim 20 is also allowable since Subrahmanyam includes no teaching or suggestion of an insert 12, 41 or a socket 14, 42 that includes thermoplastic conductive elastomer.

With respect to the semiconductor device component to which independent claim 22 is directed, it is respectfully submitted that Subrahmanyam lacks any teaching or suggestion of "a first member of an alignment structure . . . including an aperture through a length thereof" and "a

conductive center in [the] aperture . . .” Again, it is respectfully submitted that the insert 12, 41 of Subrahmanyam does not include any feature that could be considered to comprise an aperture.

Moreover, Subrahmanyam does not teach or suggest that any conductive material may be located within the aperture defined by the sectioned ring 34 and flanged head 39 of the socket 14, 42. More specifically, the metal pedestal 29 disclosed in Subrahmanyam does not include an outer periphery that is laterally surrounded by any portion of the sectioned ring 34, laterally confined within at least a base portion of an aperture of the sectioned ring 34, or otherwise disposed within the aperture of the sectioned ring 34.

As such, a *prima facie* case of obviousness has not been established, as would be required to maintain the 35 U.S.C. § 103(a) rejection of independent claim 22.

Each of claims 23, 24, 26-31, 33-37, and 39-46 is allowable, among other reasons, for depending directly or indirectly from independent claim 22, which is allowable.

Claim 28 is additionally allowable since Subrahmanyam lacks any teaching or suggestion of a member of an alignment structure that is configured to contain conductive material over at least one contact pad.

Claim 29 is further allowable because Subrahmanyam does not teach or suggest a member of an alignment structure with an aperture that is substantially filled by a conductive center.

Claim 31 is also allowable because Subrahmanyam does not teach or suggest a male member with an end portion that has a smaller periphery than a base portion of the male member. Rather, the description of Subrahmanyam is limited to an insert 12, 41 with a circular head 37 that has a smaller periphery at its end than at a base of the circular head 37. Nonetheless, the outer periphery of the end of the circular head 37 appears to be the same size as the outer periphery of the base of the cylindrical base 32 of the insert 12, 41.

Claim 35 is further allowable since Subrahmanyam does not teach or suggest a member of an alignment structure that includes an aperture that is partially filled by a conductive center.

Claim 40 is additionally allowable because Subrahmanyam does not teach or suggest that either the insert 12, 41 or the socket 14, 42 thereof may include at least partially unconsolidated conductive material. Rather, the disclosure of Subrahmanyam is limited to conductive structures that comprise fully consolidated features.

Claim 41, which depends from claim 40, is further allowable because Subrahmanyam neither teaches nor suggests that either the insert 12, 41 or the socket 14, 42 thereof may include at least partially uncured conductive resin.

Claim 42, which depends from claim 41, is further allowable since Subrahmanyam does not teach or suggest that either the insert 12, 41 or the socket 14, 42 thereof may include uncured conductive resin.

Claim 43 is also allowable since Subrahmanyam includes no teaching or suggestion of an insert 12, 41 or a socket 14, 42 that includes thermoplastic conductive elastomer.

Claim 45 is further allowable since Subrahmanyam includes no teaching or suggestion that either the insert 12, 41 or the socket 14, 42 thereof includes any feature that comprises a photopolymer. It is also submitted that, because the teachings of Subrahmanyam are limited to use of conductive materials to form the insert 12, 41 and the socket 14, 42, one of ordinary skill in the art wouldn't have been motivated to modify teachings from Subrahmanyam in such a way as to render the subject matter recited in claim 45 obvious.

Claim 46 depends from claim 45, and is also allowable since Subrahmanyam provides no teaching or suggestion of an insert 12, 41 or socket 14, 42 with any feature that comprises a plurality of layers of photopolymer. Nor would one of ordinary skill in the art been motivated to modify the teachings of Subrahmanyam in such a way as to develop a feature that includes a plurality of layers of photopolymer.

Independent claim 47 is drawn to a semiconductor device assembly that includes a conductive structure with a first member and a second member. The first member includes an aperture therethrough. A conductive center, which includes an outer periphery that is at least partially laterally surrounded by the first member, is located within the aperture. The second member, which is configured to be interconnected with the first member, includes an aperture therethrough. Another conductive center includes an outer periphery that is at least partially laterally surrounded by the second member and is, thus, located within the aperture of the second member.

Again, it is respectfully submitted Subrahmanyam does not expressly or inherently describe each and every element of independent claim 47. In particular, neither the insert 12, 41 nor the socket 14, 42 of Subrahmanyam includes all of the features of either the first member or the second member of the assembly to which independent claim 47 is directed. In particular, it is respectfully submitted that the insert 12, 41 of Subrahmanyam lacks an aperture, while the socket 14, 42 of Subrahmanyam does not include “a conductive center” within an aperture defined by the sectioned ring 34 and flanged head 39 thereof. More particularly, the sectioned ring 34 of the socket 14, 42 of Subrahmanyam does not laterally surround any portion of the metal pedestal 29 over which the sectioned ring 34 is disposed.

Therefore, it is respectfully submitted that Subrahmanyam does not teach or suggest each and every element of independent claim 47, as would be required to establish a *prima facie* case of obviousness under 35 U.S.C. § 103(a).

Each of claims 48, 49, 51-53, 55-65, and 67-69 is allowable, among other reasons, for depending directly or indirectly from independent claim 47, which is allowable.

Claim 49 is additionally allowable because Subrahmanyam includes no teaching or suggestion of a member with an aperture that includes an upper portion with a smaller periphery than a base portion of the aperture. Instead, as shown in FIGs. 7 and 9, the upper portion of the periphery of the aperture of the socket 14, 42 is larger than the periphery of the base of the socket's aperture.

Claim 52 is further allowable because Subrahmanyam neither teaches nor suggests that the aperture of the socket 14, 42 described therein is “configured to limit a distance the [insert 12, 41] is inserted into [the aperture].” To the contrary, FIGs. 7 and 9 depict the aperture of the socket 14, 42 as including smooth walls that are oriented perpendicular to the underlying pedestal 29.

Claim 53 is additionally allowable because Subrahmanyam does not teach or suggest that the insert 12, 41 has an end portion with a smaller periphery than a base portion thereof. Rather, the description of Subrahmanyam is limited to an insert 12, 41 with a circular head 37 that has a smaller periphery at its end than at a base of the circular head 37. Nonetheless, the outer

periphery of the end of the circular head 37 appears to be the same size as the outer periphery of the base of the cylindrical base 32 of the insert 12, 41.

Claim 57 is additionally allowable because Subrahmanyam does not teach or suggest that either the insert 12, 41 or the socket 14, 42 thereof may include at least partially unconsolidated conductive material. Rather, the disclosure of Subrahmanyam is limited to conductive structures that comprise fully consolidated features.

Claim 58, which depends from claim 57, is further allowable because Subrahmanyam neither teaches nor suggests that either the insert 12, 41 or the socket 14, 42 thereof may include at least partially uncured conductive resin.

Claim 59, which depends from claim 58, is further allowable since Subrahmanyam does not teach or suggest that either the insert 12, 41 or the socket 14, 42 thereof may include uncured conductive resin.

Claim 60 is also allowable since Subrahmanyam includes no teaching or suggestion of an insert 12, 41 or a socket 14, 42 that includes thermoplastic conductive elastomer.

Claim 62 is further allowable since Subrahmanyam includes no teaching or suggestion that either the insert 12, 41 or the socket 14, 42 thereof includes any feature that comprises a photopolymer. It is also submitted that, because the teachings of Subrahmanyam are limited to use of conductive materials to form the insert 12, 41 and the socket 14, 42, one of ordinary skill in the art wouldn't have been motivated to modify teachings from Subrahmanyam in such a way as to render the subject matter recited in claim 62 obvious.

Claim 63 depends from claim 62, and is also allowable since Subrahmanyam provides no teaching or suggestion of an insert 12, 41 or socket 14, 42 with any feature that comprises a plurality of layers of photopolymer. Nor would one of ordinary skill in the art been motivated to modify the teachings of Subrahmanyam in such a way as to develop a feature that includes a plurality of layers of photopolymer.

Subrahmanyam in View of Abe

Claims 25 and 66 have been rejected under 35 U.S.C. § 103(a) for being directed to subject matter that is assertedly unpatentable over the teachings of Subrahmanyam, in view of teachings from U.S. Patent 5,646,442 to Abe et al. (hereinafter "Abe").

Claim 25 is allowable, among other reasons, for depending indirectly from independent claim 22, which is allowable.

Claim 66 is allowable, among other reasons, for depending indirectly from independent claim 47, which is allowable.

Withdrawal of the 35 U.S.C. § 103(a) rejections of claims 1, 2, 4-8, 10-31, 33-37, 39-53, and 55-69 is respectfully solicited, as is the allowance of each of these claims.

**Allowable Subject Matter**

The indication that claims 17-19, 40-42, and 57-59 are drawn to allowable subject matter is gratefully acknowledged. The subject matter from claims 17, 40, and 57 has been incorporated into new dependent claims 142, 162, and 186, respectively. None of these new claims, nor any of new claims 143-161, 163-185, or 187-207 depending respectively therefrom introduces new matter into the above-referenced application.

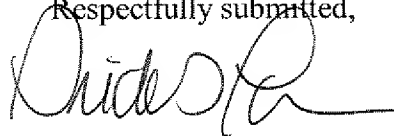
**Election of Species Requirement**

It is respectfully submitted that each of claims 1, 2, 5, 8, 10-12, 14, 17-31, 35-37, 40-49, 52, 53, and 57-69 remains generic to all of the species of invention that were identified in the Election of Species Requirement in the above-referenced application. In view of the allowability of these claims, claims 3, 9, 32, 38, 50, and 54, which have been withdrawn from consideration, should also be considered and allowed. M.P.E.P. § 806.04(d).

**CONCLUSION**

It is respectfully submitted that each of claims 1-69 and 142-207 is allowable. An early notice of the allowability of each of these claims is respectfully solicited, as is an indication that the above-referenced application has been passed for issuance. If any issues preventing allowance of the above-referenced application remain which might be resolved by way of a telephone conference, the Office is kindly invited to contact the undersigned attorney.

Respectfully submitted,



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